

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

This Document contains information affecting the National Defense of the United States, within the meaning of Title 18, Sections 793 and 794, of the U.S. Code, as amended. Its transmission or revelation of its contents to or receipt by an unauthorized person is prohibited by law. The reproduction of this form is prohibited.

SECRET

25X1

| | | | | |
|----------------|--|-----------------|--------------|------|
| COUNTRY | USSR (Moscow Oblast) | REPORT NO. | [REDACTED] | 25X1 |
| SUBJECT | Novokramatorsk Heavy Machine-Building Plant at Elektrostal | DATE DISTR. | 30 June 1953 | |
| DATE OF INFO. | [REDACTED] | NO. OF PAGES | 8 | |
| PLACE ACQUIRED | [REDACTED] | REQUIREMENT NO. | [REDACTED] | 25X1 |
| | | REFERENCES | | |

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

General Information

1. The Novokramatorsk Heavy Machine-Building Plant i/n Stalin (Novokramatorskiy Zavod Tyazhëlogo Mashinostroyeniya imeni Stalina-NKMZ im. Stalina) is at Elektrostal (N 55-47, E 38-28), 62 km by rail from Moscow. Elektrostal is situated on a branch line to Noginsk which leaves the Moscow-Gorkiy line at Fryazevo. Elektrostal is 7 km from both the Fryazevo and Noginsk stations. The plant belongs to the Ministry of Heavy Machine-Building and is directly subordinate to the Chief Directorate of Metallurgical Machine-Building, or GUMMash, which has its head office at 11/13 Sadovo-Kudrinskaya Ulitsa, in Moscow. The plant also carries out orders for the Chief Directorate of Hoisting and Transport Machine-Building (GUPTMash) of the same ministry.

History

2. Before the last war, the Elektrostal Metallurgical Plant of the People's Commissariat for Ferrous Metallurgy, which produced special steels of many kinds, was located in this area, and a workers' settlement called Elektrostal came into being. This settlement was given the status of a town of the same name in 1938. At this time a factory for the production of air-plane-engine parts, belonging to the Peoples' Commissariat for Aviation Industry, was under construction adjacent to the Elektrostal Plant. This factory was completed before the outbreak of hostilities. On the opposite side of the railroad was Filling Factory No. 12 of the Peoples' Commissariat for Ammunition. This factory filled artillery shells, bombs, and mines. Next to the filling factory was a chemical factory, belonging to the Peoples' Commissariat for Chemical Industry, which produced anti-gas equipment and similar articles. The chemical factory was previously part of Filling Factory No. 12.

SECRET

25X1

| | | | | | | | | | | | | | | | | | | | |
|-------|---|------|---|------|---|-----|---|-----|--|-----|--|--|--|--|--|--|--|--|--|
| STATE | X | ARMY | X | NAVY | X | AIR | X | FBI | | AEC | | | | | | | | | |
|-------|---|------|---|------|---|-----|---|-----|--|-----|--|--|--|--|--|--|--|--|--|

25X1

(Note: Washington Distribution Indicated By "X"; Field Distribution By "✓")

- 2 -

3. At the outbreak of hostilities in autumn 1941 (sic), Factory No. 12 was evacuated to the Novosibirsk area, and the aviation factory moved to the Urals. A small part of the Elektrostal Plant and a very small section of the chemical factory also were evacuated. During the same period the Novokramatorsk Heavy Machine-Building Plant, including most of its equipment and personnel, was moved from Kramatorsk (N 48-43, E 37-32) to Elektrostal and accommodated in the aviation factory building adjoining the Elektrostal Plant. A smaller part of the personnel and equipment was sent to the Urals. As the aviation factory had only a shape casting foundry (fasonno-liteynny tsekh) with comparatively small electric furnaces consisting of two of ten-ton and one of three-ton capacity, the Third Steel Foundry of the Elektrostal Plant was turned over to the Novokramatorsk Heavy Machine-Building Plant. This foundry had one electric furnace of thirty-ton capacity and a Martin furnace of thirty-five-ton capacity. The Novokramatorsk Plant remained under the control of the Peoples' Commissariat for Heavy Industry and began work in 1941 on the fulfillment of orders for industries connected with defense, metallurgy, and coal mining. During the war and until the end of 1948 the director of the plant was Yefim Stepanovich Novoselov, who formerly was director of the Central Scientific Research Institute of Heavy Machine-Building (TsNIITMash).
4. After Kramatorsk was evacuated by the Germans, the Novokramatorsk Plant was rebuilt, having been badly damaged by the Germans, and recommenced the production of heavy machinery. Most of the personnel and equipment which had been evacuated to Elektrostal remained there, and in this way two Novokramatorsk Heavy Machine-Building Plants i/n Stalin came into existence. The one at Kramatorsk was equipped with modern machinery when it was rebuilt and has the greater productive capacity. The aviation factory which was evacuated from Elektrostal did not return, but Filling Factory No. 12 returned to Elektrostal in 1942 and continued to fill ammunition. In 1946 almost all the personnel and equipment were transferred to other factories engaged in the manufacture of ammunition, and new chemical and electrical machine-building installations of a very secret nature took over the plant. The director of this new plant was Tipanov (fnu), and the plant also took over the premises of the adjoining chemical factory. After the war the NKMZ i/n Stalin at Elektrostal was expanded, and new production facilities and housing were built. At the end of 1947 and beginning of 1948 large buildings were constructed to house the Machine-Assembling Shop and the Roller Shop. In 1951 the 2nd Machine-Assembling Shop building was completed. Several multiple-story buildings for personnel were built on Oktyabrskaya Ulitsa and Sovetskaya Ulitsa, a communal dwelling was built at the Chirikovo settlement, a large, multiple-story building on Stalin Prospekt, etc.

Production

5. Machinery and mechanical equipment for rolling mills, Martin furnaces, and blast furnaces were produced, including the following:
- a. Turntables, roller conveyors, devices for inserting ingots and withdrawing them from heating furnaces, etc. This equipment was manufactured for the blooming mill built at the Uralmash Zavod and installed at the Trans-Caucasus Metallurgical Plant i/n Stalin at Rustavi.
 - b. Stands (rabochaya klet), throw-off apparatus for coolers (sbrasyvatel dlya kholodilnikov), reduction gears, roller conveyors, turntables, etc., for the large-size rolling mill belonging to the Azovstal Metallurgical Plant at Zhdanov.
 - c. Machines and auxiliary equipment for rolling mills "900" and "800" for the Rail and Girder Shop of the Novotagil Metallurgical Plant at Nizhniy Tagil. All the main equipment for this shop was built at the Uralmash Zavod.

SECRET

25X1

SECRET

25X1

- 3 -

- d. Pipe-rolling plant "140-400" (truboprokatnyy aggregat 140-400). This plant is designed for rolling seamless pipes from round ingots (zagotovka) of 150-320-mm diameter, up to 5 meters in length and 2.6 tons in weight. The diameters of pipe produced are from 150 to 400 mm. The plant is composed of two broaching mills, an automatic mill, two reeling mills (rilling-stan), and two gauging mills (kalibrovochnyy stan), one for hot and the other for cold gauging. The broaching mills (proshivnoy stan) have working rollers of 1200-mm diameter, length of body (bochka) 760 mm, and 80-110 rpm. Engines (dvigatel) are 5000 hp each with 160-210 rpm. The automatic mill has a roller 1000 mm in diameter, body length of 1550 mm, and 60-90 rpm. The engine is 2500 hp with 365-560 rpm. The reeling mills have rollers 800 mm in diameter, body length 720 mm, and 90-180 rpm. The engines are 1200 hp each, with 400-730 rpm. The three-stand gauging mill (trëkhletovoy kalibrovochnyy stan) for hot-gauging has rollers 750 mm in diameter, a body length of 530 mm, and 30-50 rpm. The three engines each have 200 hp with 500-900 rpm. The seven-stand gauging mill for cold-gauging has rollers 750 mm in diameter, a body length of 530 mm, and 30-50 rpm. The seven engines each have 200 hp and 500-900 rpm. The weight of the entire outfit is about 6500 tons, and the average output is 340,000-350,000 tons a year.
 - e. Stiefel "400" rolling mill (prokatnyy stan Shtifel 400).
 - f. Sheet rolling mills for small alloy steel sections (listovoy stan dlya prokatki melkikh profiley legirovannoy stali).
 - g. Electrical pipe-welding mills (elektrotrubosvarochnyy stan); the first mill was installed at the Khartsysk Metallurgical Plant and gave very good results. Pipes with diameters up to 600 mm are produced from steel strips 4-8 mm thick which had been welded spirally.
 - h. A large number of separate auxiliary mechanical apparatus designs connected with rolling mills, which are supplied to various steel plants. These consist of roller conveyors (rollgang), turntables (povorotnyy stol), tilters (kantovatel), manipulators (manipulyator), pushing-off apparatus (stalkivatel), doubling machines (dubler), which are used for bending and folding sheets in half during hot-rolling of thin sheets, lifting and rocking tables (podyemno-kachayushchiy stol) for thin sheet rolling mills, etc.
 - i. Rollers and reduction gears of various types for steel mills.
 - j. Bessemer converters for the Dzerzhinskiy Steel Mill at Dneprodzerzhinsk.
 - k. Casting machines (razlivochnaya mashina) for the Elektrostal Serp i Molot Plant.
 - l. Crabs for ingot molds (teleshka dlya izlozhnits) and crabs for cranes; mold-filling cranes (muldozavalochnyy kran) for the Chel-yabinsk Pipe Plant.
 - m. Auxiliary equipment for blast furnaces.
6. Electrical bridge cranes for foundries; the chief product in this category is heavy bridge cranes for working with molten metal. These cranes have two crabs - a main crab for lifting and transporting ladles and an auxiliary crab for turning and tilting the ladle and other work in the shop. The auxiliary crab can pass under the main crab. Cranes include:
 - a. An electrical bridge crane for employment in foundries, having a lifting capacity of 125 tons, lifting height of the mechanism of the main crab 26 meters, lifting speed 6 meters per minute, lifting height of the auxiliary crab 20 meters, speed - 7.5 m per minute. Traveling speed of main crab - 31 m per minute, of the auxiliary crab - 35 m per minute, and of the crane bridge - 80 m per minute.

SECRET

25X1

SECRET

25X1

- 4 -

- b. An electrical bridge foundry crane with lifting capacity of 175 tons, lifting height of the main crab 18 meters, and lifting speed 4 meters a minute. The auxiliary crab has two lifting gears; the lifting height of the first gear is 20 meters and speed of lifting is 7.5 m per minute; lifting height of the second gear is 28 m and the lifting speed is 15 m per minute. The traveling speed of the main crab is 31 m per minute, of the auxiliary crab - 35 m per minute, and of the crane bridge - 80 m per minute.
 - c. An electrical bridge foundry crane with a lifting capacity of 260 tons; the lifting height of the main part of the mechanism of the main crab is 16 m and speed of lifting is 2.6 m per minute. The lifting height of the first gear of the auxiliary crab is 20 m and lifting speed 5 m per minute. The lifting height of the second gear of the auxiliary crab is 20 m and lifting speed 15 m per minute. The traveling speed of the main crab is 25 m per minute, of the auxiliary crab 35 m per minute, and of the crane bridge - 60 m per minute.
 - d. A crane with a lifting capacity of 350 tons was produced in 1952.
 - e. In 1952 a bridge crane for use in steel mills was produced. The bridge girders (ferma) were 75 meters between supports. A crab with a turning jib traveled along the lower flanges (poyas) of the bridge girders. The weight of the crab was 70 tons. The total weight of the bridge was about 700 tons.
 - f. Cranes with other lifting capacities have been produced, and the plant is at present engaged in construction of a bridge crane of 300-ton capacity.
 - g. A considerable number of parts used in the construction of cranes have been standardized by the Crane-Building Office.
7. Electrical mine elevators of several types are produced, with one or two drums and automatic controls for regulating the speed of lifting. these include:
- a. Single-drum elevators 1 x 4 x 2 (The first figure denotes the number of drums, the second the diameter of the drum, and the third the width of the drum, in meters.). Maximum speed is 10 m a second. There is a reduction gear with the gear ratio 9.5:10.5. Maximum tension of the rope is about 20,000 kg.
 - b. Elevator 1 x 5 x 2.3; maximum speed 13 m per second; reduction gear with the gear ratio 9.5:10.5; maximum tension of the rope - 23,000 kg.
 - c. Elevator 1 x 6 x 2.5; maximum speed 14 m per second; reduction gear with gear ratio of 10.5:11.5; maximum rope tension - 27,000 kg.
 - d. Twin-drum elevator 2 x 5 x 1.7; maximum speed 13 m per second; the reduction gear has a gear ratio of 9.5:10.
 - e. Twin-drum elevator 2 x 5 x 2.3; maximum speed 14 m per second; the reduction gear has a gear ratio of 9.5:10.5.
 - f. Twin-drum elevator 2 x 6 x 2.4; maximum speed 15 m per second; the reduction gear has a gear ratio of 10.5:11.5.
 - g. An elevator with a drum 8 m in diameter is under construction.
- Many of the parts for these elevators have been standardized.

SECRET

25X1

SECRET

25X1

- 5 -

8. The following crushers and ball mills are produced:

- a. Hammer crushers (molotkovaya drobilka) with a rotor one meter in diameter and 0.8 meters in width. The motor is 115 kw and makes 950 rpm. The length of the crusher is 2 m, width 1.8 m, height 1.5 m, weight about 6,000 kg, and output 100 tons per hour.
- b. Larger hammer crushers.
- c. Four-roller crushers (chetyrekhvalkovaya drobilka).
- d. Ball-drum mill (sharovaya barabannaya melnitsa) with balls inside the drum. This mill is for crushing for boiler plants of power stations, etc. Diameter of the drum is about 2900 mm, length 4300 mm, rpm 19.8, power 380 kw, weight of balls 33 tons, weight of mill 100 tons, and output about 14 tons an hour.
- e. Ball-drum mill with drum diameter of 2900 mm, length of drum 4700 mm, rpm 20.5, power 430 kw, weight of balls 39 tons, weight of mill 115 tons, and output 18 tons per hour.
- f. Ball-drum mill with drum diameter of 2900 mm, drum length of 5100 mm, rpm 19.4, power 520 kw, weight of balls 44 tons, weight of mill 138 tons, and output 19 tons per hour.
- g. A considerable number of balls of various kinds are produced for other factories.

In ball mills an electric motor rotates, through a reduction gear, a small cogwheel meshed with a large cogwheel which is attached to the drum. Many parts used in the manufacture of ball mills are standardized.

9. Several types of plate feeders are produced. These are used for moving large, heavy materials. In most respects they resemble plate conveyors but are shorter than conveyors and have a more compact arrangement of the steel plate band. Plate feeders are made up of two endless plate pull chains with rollers which engage sprockets. Steel plates attached to the chains form a continuous track. Plate feeders produced include a feeder 16 m long with chain and plate band both 32 m long, weighing 102 tons, with an output of 250 m per hour.

10. The plant produces the following winches (lebedka):

- a. Winches for the walking (shagayushchiy) drag-line excavator ESh-1, which is produced by the Novokramatorsk Plant at Kramatorsk. This excavator has a scoop capacity of 3.4 m. The diameter of the drum is 845 mm, diameter of lifting rope 32.5 mm, and lifting speed 1.06 m per second. Winches are sent to Kramatorsk, where the excavators are assembled. 108 winches have been sent to Kramatorsk.
- b. Winches for the new walking drag-line excavator, DESh-4/40, which is also built at the NKMZ at Kramatorsk. The scoop of this excavator has a capacity of 4 cu m and a jib 40 m long.
- c. Winches for a new excavator with a 15-cu-m scoop, which is also being built at the NKMZ at Kramatorsk.
- d. Winches with a lifting capacity of 100 tons; among other uses, it is employed to lift detachable bridge spans.

11. Many types of reduction gears and gear wheels (shesternya) are produced for rolling mills, bridge cranes, bridge-lifting machinery, mine elevators, lock-gate machinery, etc. These included reduction gears for

SECRET

25X1

SECRET

25X1

- 6 -

six stands of the four-high, thin-sheet, continuous-action rolling mill "1680" (kvarto tonkolistovoy nepreryvnyy stan 1680). The motor of each stand produced 3500 hp. The following table gives details of some of the reduction gears produced:

| <u>Weight (tons)</u> | <u>Number of teeth</u> | <u>Teeth on drive wheel</u> |
|----------------------|------------------------|-----------------------------|
| 57 | 45 | 32 |
| 60 | 50 | 32 |
| 64 | 88 | 32 |
| 67 | 62 | 32 |
| 90 | 122 | 26 |
| 124 | 188 | 26 |

In addition the plant produces large gear wheels for power stations.

12. Many large, heavy, stainless-steel blades for hydroturbines of hydroelectric stations are cast. Some of the blades weigh 25 tons. Blades cast for the Tsimplanskaya Hydroelectric Station weighed 10 tons. Preparations have been made for casting blades weighing 30 tons each for the Kuybyshev and Stalingrad GES now under construction.
13. The plant also produces lubricating apparatus of various types, mainly for rolling mills.

Customers

14. The following is a list of enterprises which are supplied by the plant:

Uralmash Zavod
 Azovstal Steel Mill, Zhdanov
 Podolsk Machine-Building Plant i/n Ordzhonikidze
 Khartsysk Steel Mill
 Dzerzhinskiy Steel Mill at Dneprodzerzhinsk
 Elektrostal Serp i Molot Plant
 Chelyabinsk Pipe Factory
 Novokramatorsk Plant, Kramatorsk
 Volkhov Hydroelectric Station (GES)
 Stalingrad GES
 Svir GES
 Kama GES
 Kuybyshev GES
 Farkhad GES
 Gorkiy GES
 Tsimplyanskaya GES
 Stalin Metallurgical Plant, Leningrad
 Lenin Metallurgical Plant, Leningrad
 Volga-Don Canal
 Volga River Administration
 Don River Administration
 Dnepr River Administration
 Bolshoy and Malyy theaters, Moscow
 The Moscow subway

Since the war the plant has cast 124 large blades for hydroelectric stations.

Miscellaneous Projects

15. The plant produced 32 sets of machinery for operating the steel lock gates of the Volga-Don Canal. Each set weighed 48 tons. Each gear wheel was 4 m in diameter. The gates are operated by motors through reduction gears. Six sets of machinery with winches of 100-ton lifting capacity were produced for raising movable bridge spans to allow the passage of ships on the Don, Volga, and Dnepr rivers.

SECRET

25X1

SECRET

25X1

- 7 -

Other articles produced included:

Steel forgings for the Podolsk Machine-Building Plant i/n Ordzhonikidze, the Leningrad Lenin Plant, and the Stalin Plant at Leningrad.

Large gear wheels (shesternya) and sprockets (zvezdochka) for the tractor industry.

Plough frames for the agricultural industry.

Machinery for the Bolshoy and Malyy theaters, Moscow.

Forgings for subway cars for the Moscow subway

Apparatus for the oil industry.

Value of Production

16. In 1946 the total product had a market value of 104,000,000 rubles.
In 1952 the total product had a market value of 240,000,000 rubles.

Personnel

17. Director - Kondratskiy
Deputy Director - Chvirov
Deputy Director for Commercial Affairs - Trok
Chief Engineer - Ornyanskiy
Chief Designer - Yampolskiy
Chief Metallurgist - Odintsov
Chief of the Capital Construction Department - Sorokin
Chief Accountant - Glagolev

The plant employed about 8000 workers, working three shifts, except for some auxiliary shops which worked two shifts.

Shops

18. Steel Foundry Shop (Staleliteyny Tsekh) - Vorobyev
Shape-Casting Foundry Shop (Fasonnoliteyny Tsekh) - Barabash
Iron Foundry Shop (Chugunnoliteyny Tsekh) - Matsenko
Forge and Press Shop (Kuznechnopressovyy Tsekh) - Kravchenko; this shop includes a Hammer Section (Otdeleniye Molotov) and a Press Section (Otdeleniye Pressov). The press section is equipped with presses of 1500, 800, and 600 tons, among others.
- Pattern Shop (Modelnyy Tsekh) - Reutov
Reduction Gear Shop (Reduktorny Tsekh) - Oreshnikov
Crane-Building Shop (Tsekh Kranostroyeniya) - Lazarenko
Roller Shop (Tsekh Valkov) - Provorov
Metal Construction Shop (Tsekh Metallkonstruktsii) - Borodin
Machine Assembling Shop No. 1 (Mekhanosbornochnyy Tsekh No. 1) - Zaslavskiy
Machine Assembling Shop No. 2 - Kolosnikov
Tool Shop (Instrumentalnyy Tsekh)
Assembly Shop (Montazhnyy Tsekh)
Machine Repair Shop (Remontno-Mekhanicheskiy Tsekh)
Heat and Power Shop (Teplosilovoy Tsekh)
Transport Shop (Transportnyy Tsekh)

SECRET

25X1

SECRET

25X1

- 8 -

Bureaus

19. Because of the large variety of machines produced, the following design bureaus have been created at the plant:

Rolling Machine-Building Bureau (Byuro Prokatostroyeniya); engineers include Osadchiy, Khutornyy, and Karpyshev.

Crane-Building Bureau (Byuro Kranostroyeniya); engineers include Osinov. This bureau is mainly engaged in the design and construction of bridge cranes.

General Machine-Building Bureau (Byuro Obshchego Mashinostroyeniya); engineers include Gutchenko.

Reduction Gear Building Bureau (Byuro Reduktorostroyeniya); engineers include Grigoryev. The reduction gears designed are mainly for the ferrous metallurgy industry.

Mining and Metallurgical Equipment Bureau (Byuro Gorno-Metallurgicheskogo Oborudovaniya); engineers include Antonov.

Lubrication Bureau (Byuro Smazki); engineers include Poluektov; this office operates in connection with the ferrous metallurgy industry for the most part.

Mining Elevators Bureau (Byuro Shakhtnykh Podyemnikov)

SECRET

25X1